

Air Medical Update



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Helicopter Utilization

As with any other medical intervention, there are factors to consider

Risk

Cost

Benefit

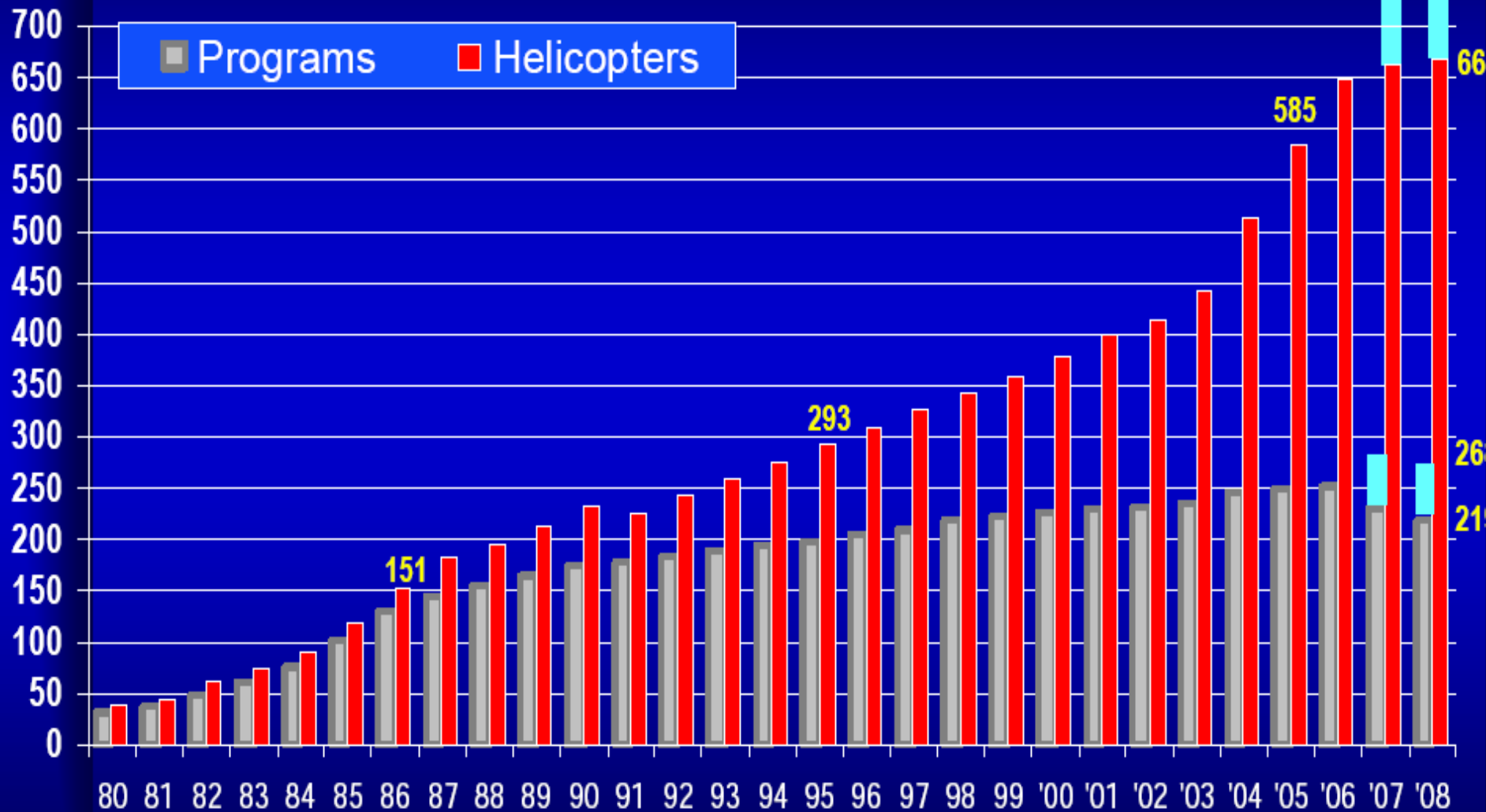


Helicopter Utilization - Risk

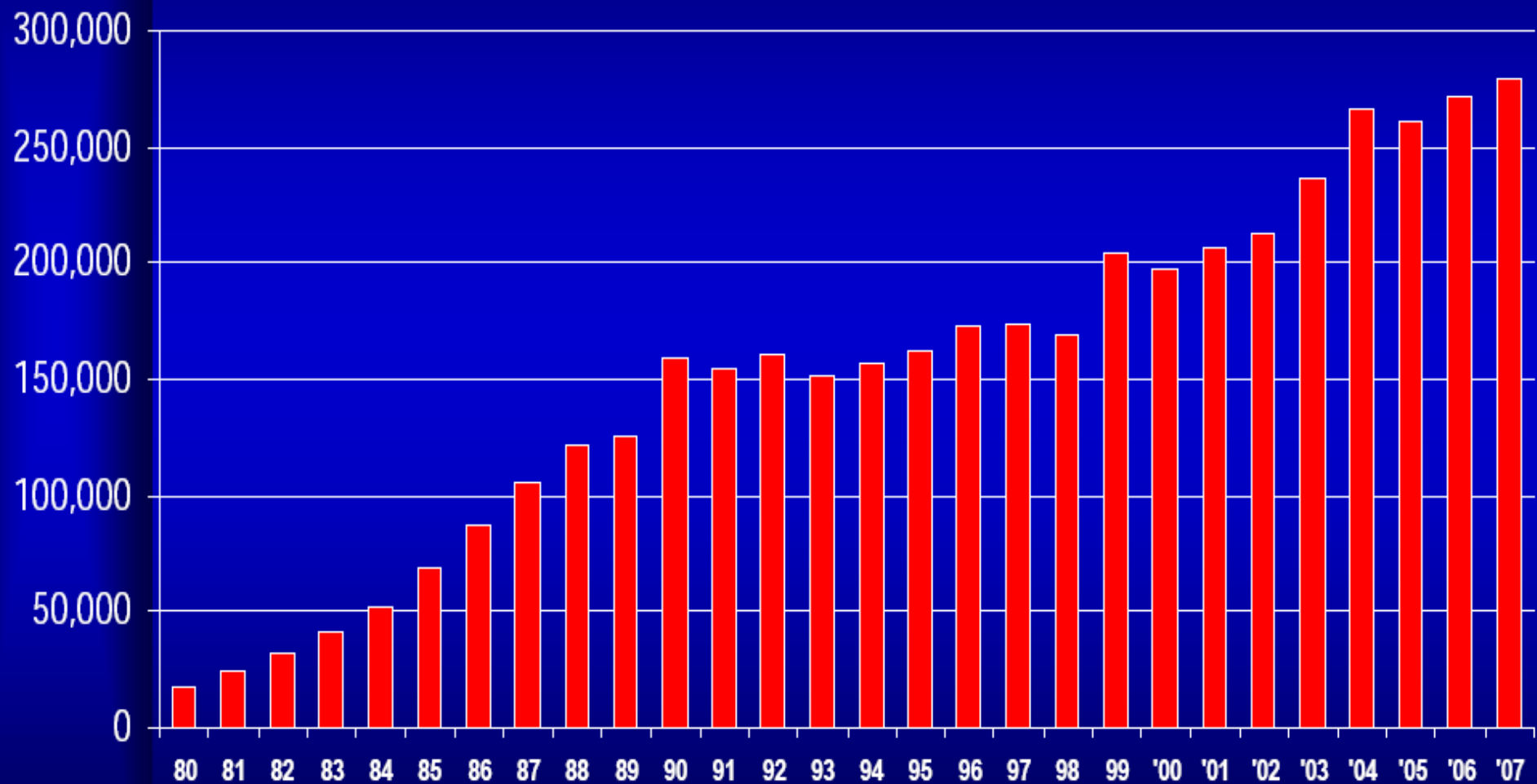
- **Rapid proliferation of HEMS programs and missions in the US in the past decade**
- **Increase in fatal crashes – Safety concerns raised NTSB in Special Investigative Report on EMS Operations in January 2006**
- **In the past year alone, NTSB has investigated 9 fatal crashes with 28 fatalities**
- **NTSB held hearings on February 3, 2009**
- **Following slides presented by Ira Bluman, MD at the NTSB hearings**

<http://www.nts.gov/events/Hearing-HEMS/default.htm>

HEMS Programs and Helicopters

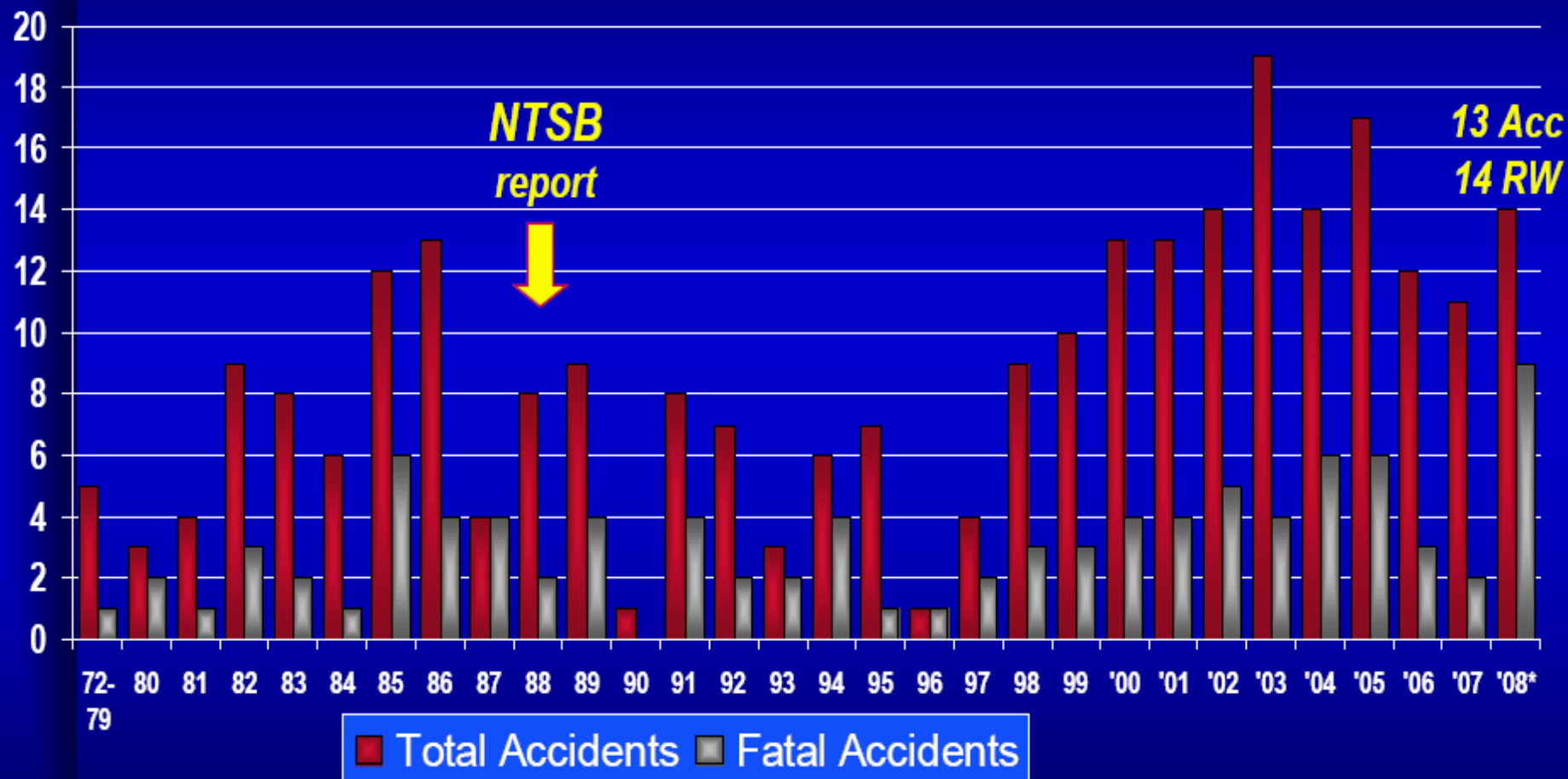


HEMS Patients Flown



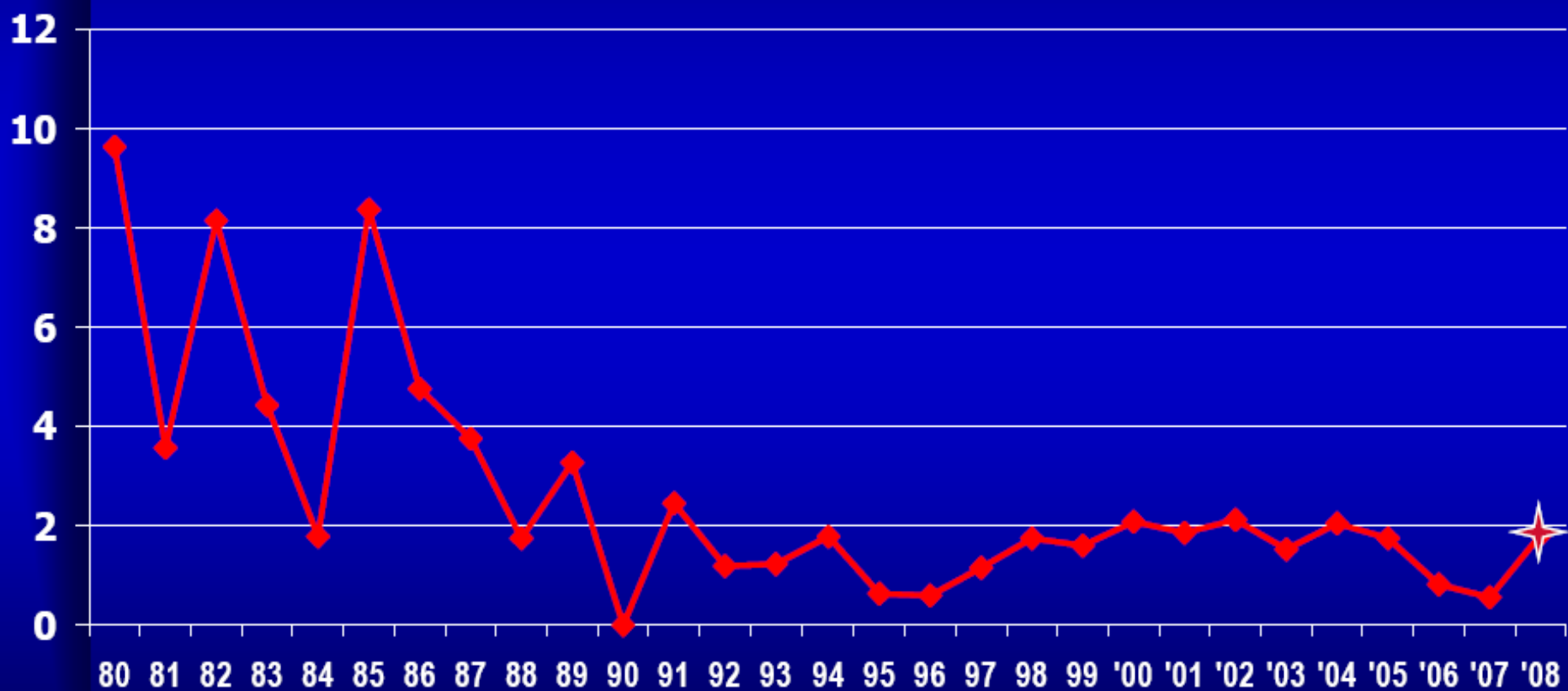
Estimated Total Patients Flown, 1972-2007: 4,300,000

U.S. HEMS Accidents and Fatal Accidents



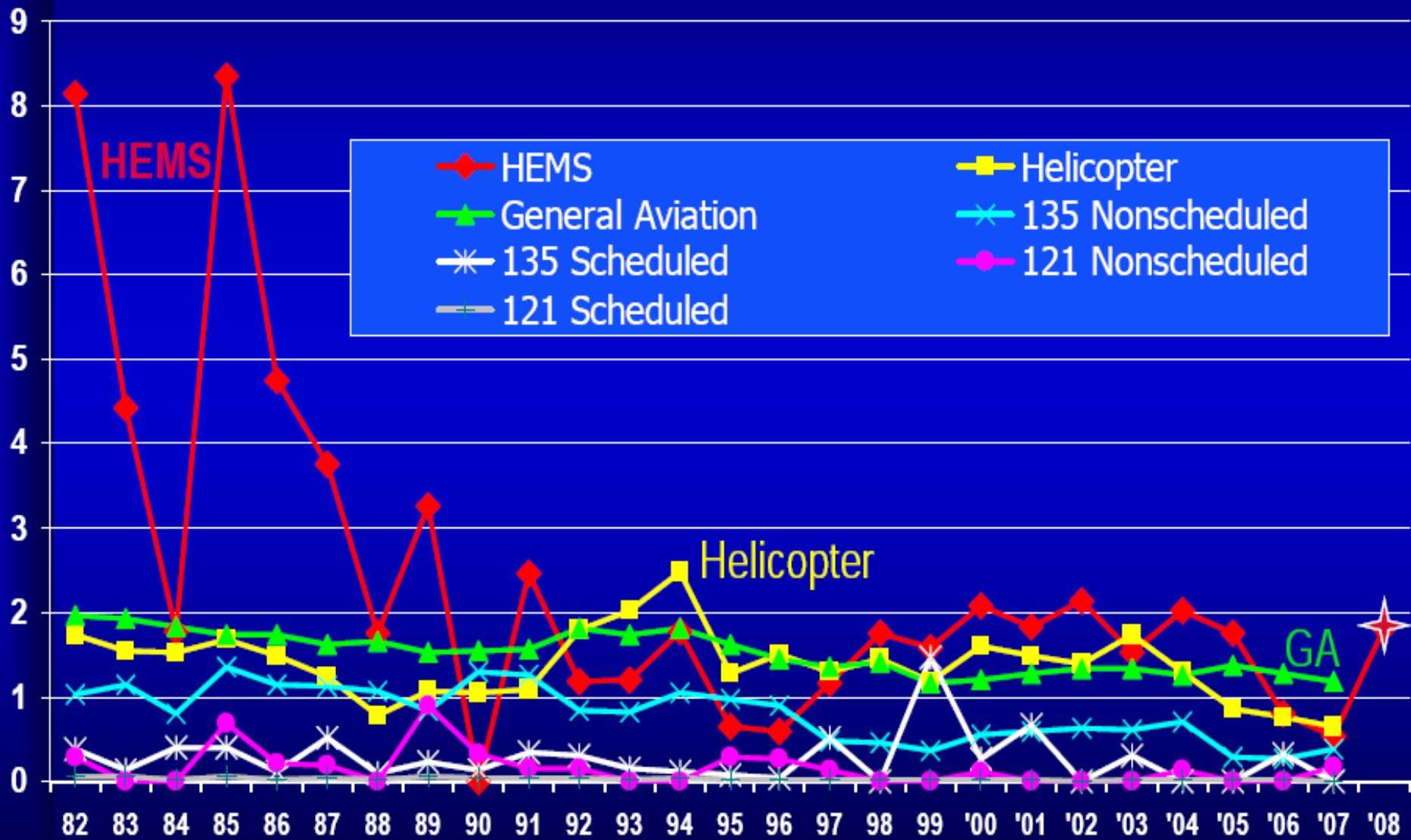
**Dedicated and dual-purpose
through December 31, 2008*

HEMS Fatal Accident Rates / 100,000 Flight Hours

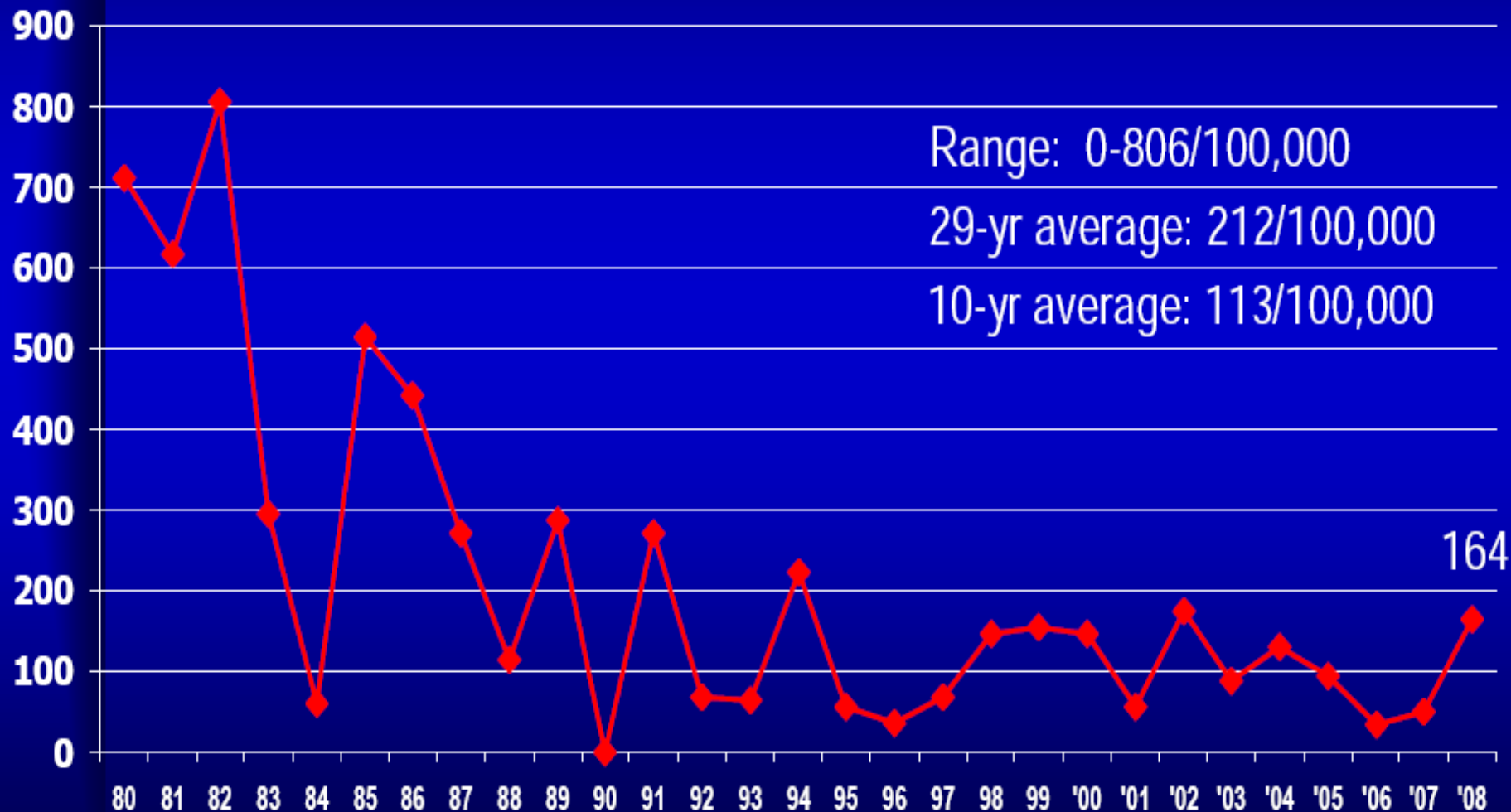


*Dedicated HEMS
through December 31, 2008*

Fatal Accidents Rates / 100,000 Flight Hours



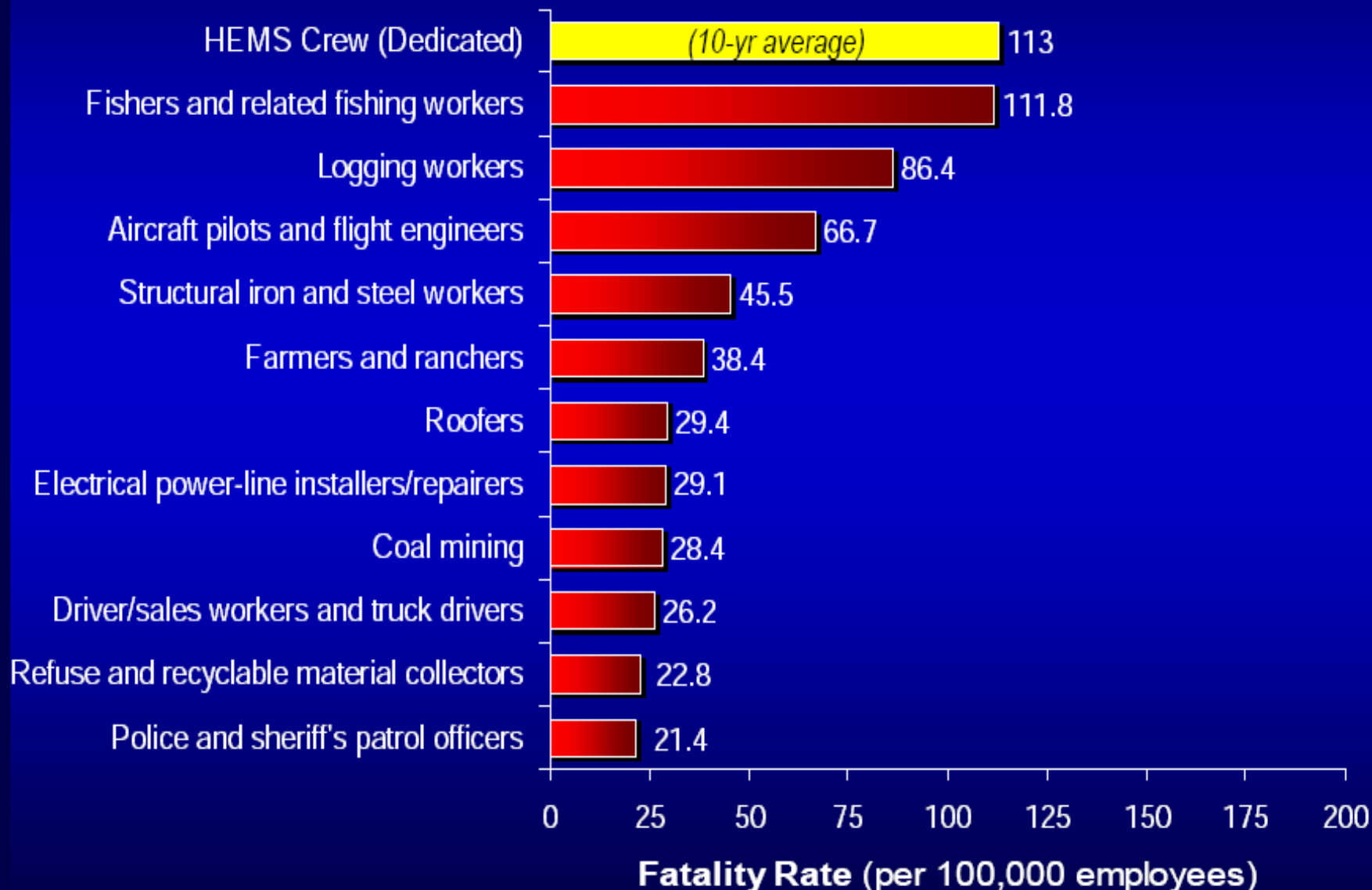
HEMS Crew Fatalities / 100,000 Personnel



High-Risk Occupations, 2007



Occupation



HEMS: The Risk to the Patient



- ◆ 29-year study
- ◆ ~ 4,500,000 patients flown by HEMS
- ◆ 34 patients have died in HEMS accidents
- ◆ Death rate: 0.76/100,000 patients flown

HEMS: The Risk to the Patient



- ◆ Institute of Medicine, 1999
 - Estimates of two major studies
 - 44,000-98,000 deaths each year due to adverse events
 - Death rate: 131-292/100,000 pts per year

Helicopter Utilization - Cost

- **Cost of transport by helicopter is significantly higher by thousands of dollars than by ground ambulance**
- **Cost potentially offset by:**
 - **Reductions in mortality**
 - **Reductions in disability**
 - **More rapid and accurate assessment at a regional trauma or specialty center**
 - **The need for fewer higher level trauma and specialty centers and costly/duplicative services**
- **There is a need for more scientific data on these issues**

Helicopter Utilization - Benefit

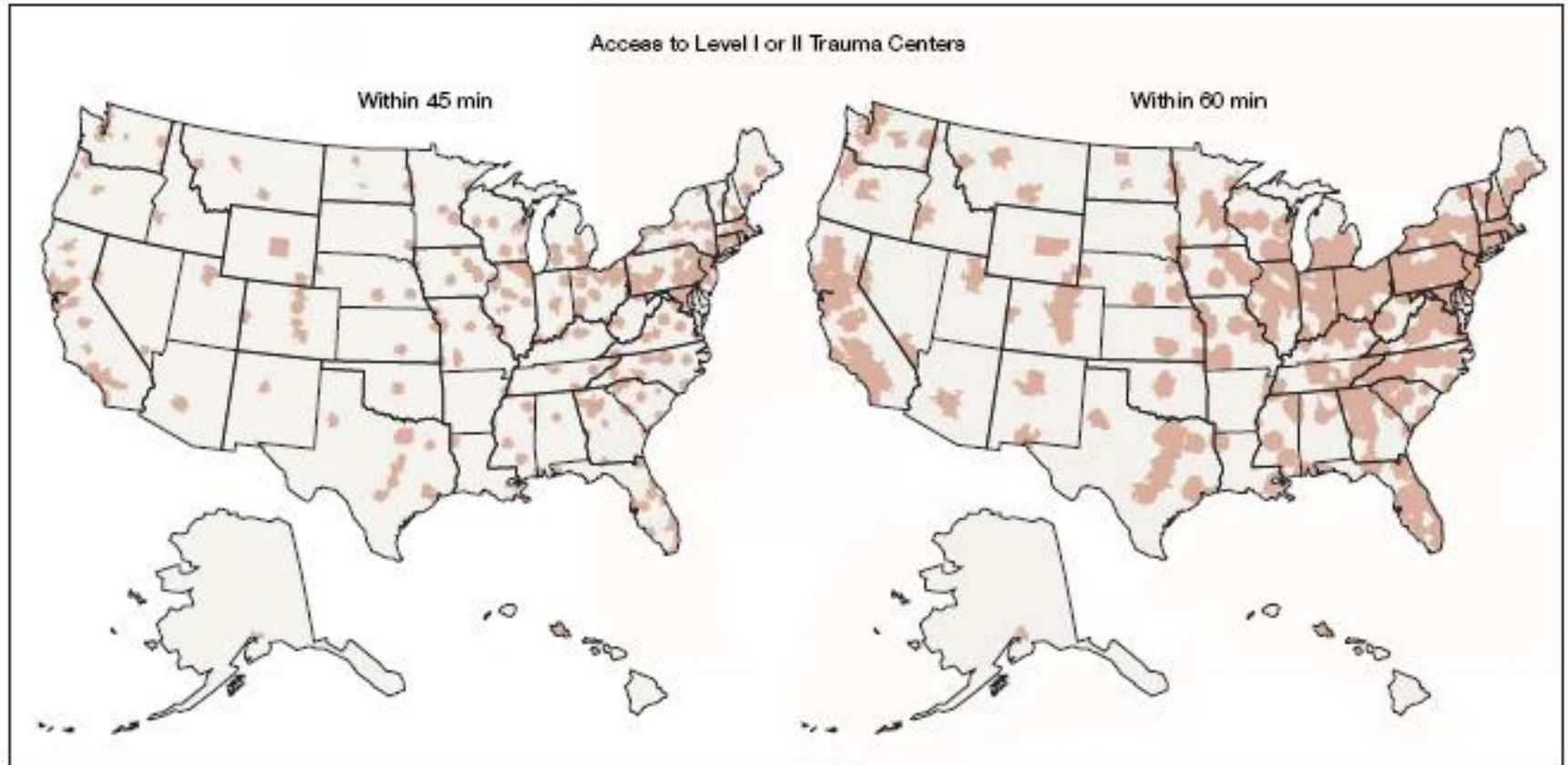
- Many published articles on benefits of air medical services
- Conflicting findings –
 - Concerns regarding overutilization
- General consensus that they improve outcomes in certain but not all patients (Thomas 2003)
- Which patients benefit from a helicopter and how does one identify them in the field and in the hospital?

Helicopter Utilization - Benefit

- **Key benefits likely relate to:**
 - **Minimizing time to definitive care**
 - **Minimizing out of hospital time**
 - **Bringing a higher level of care to the patient**
- **Most commonly HEMS is used for trauma, cardiac, critical care, and acute stroke patients.**

US Access to Trauma Centers

Figure 1. Areas of the United States With Access to Level I or II Trauma Centers by Ambulance or Helicopter



Branas C, MacKenzie E, et al. *JAMA* 2005; 293(21):2626-2633

Helicopter Utilization Guidelines

- There are currently limited national guidelines for helicopter utilization
 - NAEMSP air medical dispatch guidelines (2003)
 - Emphasis is on dispatch not the field decision making process to transport by air



TABLE 1. Questions That Can Assist in Determining Appropriate Transport Mode

- Does the patient's clinical condition require minimization of time spent out of the hospital environment during the transport?
 - Does the patient require specific or time-sensitive evaluation or treatment that is not available at the referring facility?
 - Is the patient located in an area that is inaccessible to ground transport?
 - What are the current and predicted weather situations along the transport route?
 - Is the weight of the patient (plus the weight of required equipment and transport personnel) within allowable ranges for air transport?
 - For interhospital transports, is there a helipad and/or airport near the referring hospital?
 - Does the patient require critical care life support (e.g., monitoring personnel, specific medications, specific equipment) during transport, which is not available with ground transport options?
 - Would use of local ground transport leave the local area without adequate emergency medical services coverage?
 - If local ground transport is not an option, can the needs of the patient (and the system) be met by an available regional ground critical care transport service (i.e., specialized surface transport systems operated by hospitals and/or air medical programs)?
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Overutilization of Helicopters

- **Overutilization of helicopters for transport of trauma patients from the scene is common (Bledsoe 2006)**
 - 61% had minor injuries
 - Significant variation in triage rates
- **Most overtriage in the ACS algorithm comes from MOI and other factors (steps 3 and 4)**
- **Overutilization also occurs with interfacility transports**

Need for More Data and National Guidelines on HEMS Utilization

- **Lack of scientific data**
 - Which patients benefit and when
- **Lack of consensus HEMS utilization guidelines – scene and interfacility**



Regulating HEMS

Air Safety versus Medical Safety



Shawn Rogers
NASEMSO President-elect

Air Transport Regulatory History

•1937 – Civil Aeronautics Board (CAB)

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- Set fares, routes, schedules



- Public utility

- Interstate airlines

- Guaranteed reasonable rate of return

1978 – Airline Deregulation Act

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- Safety as the highest priority in air commerce

- Maximum reliance on competition

- Gradually eliminated the CAB's authority to set fares

- Encourage entry into air transportation markets

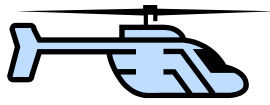
- Transferred “prices, routes, services” authority to US DOT

- Dissolved CAB

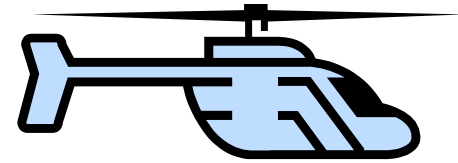


History

- **1978 – 1998**
 - 30 Programs/35 Helicopters to
 - 219 Programs/343 Helicopters
 - New: 9.45 Programs/yr & 16.9 Helicopters/yr
- **1998 – 2008**
 - 219 Programs/343 Helicopters to
 - 310 Programs/840 Helicopters
 - New: 9.1 Programs/yr & 49.7 Helicopters/yr

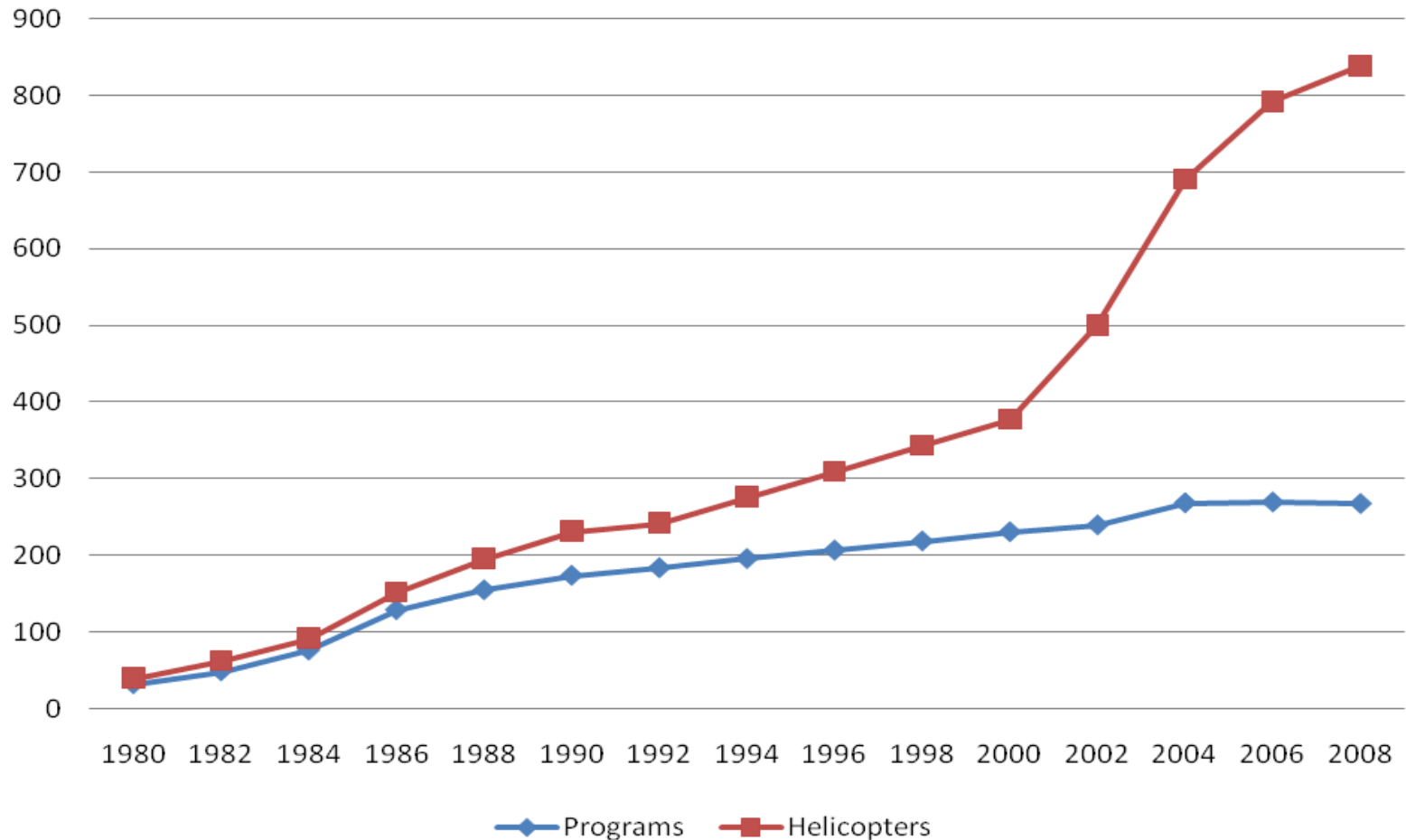


2000 – 400



2008 - 840

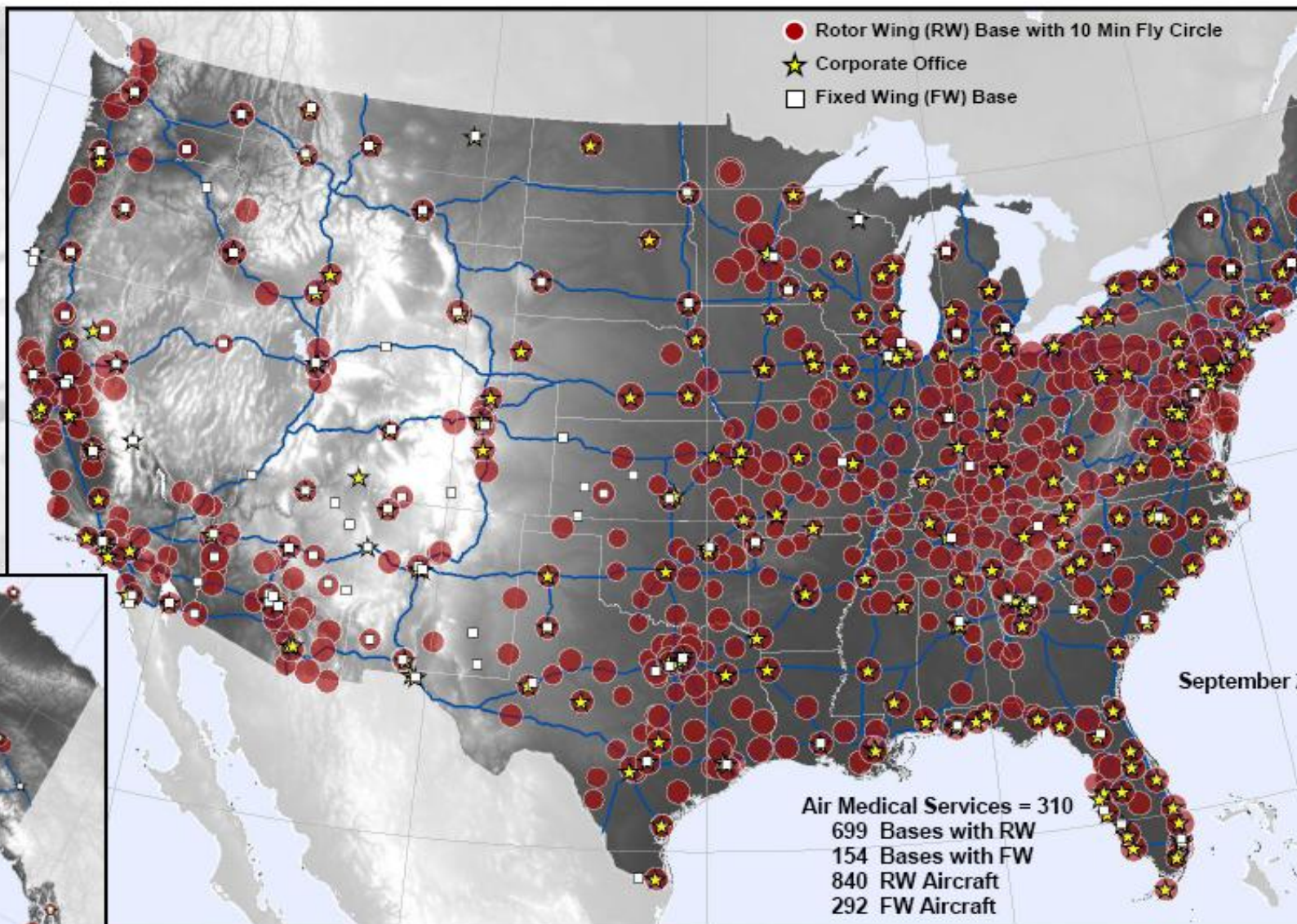
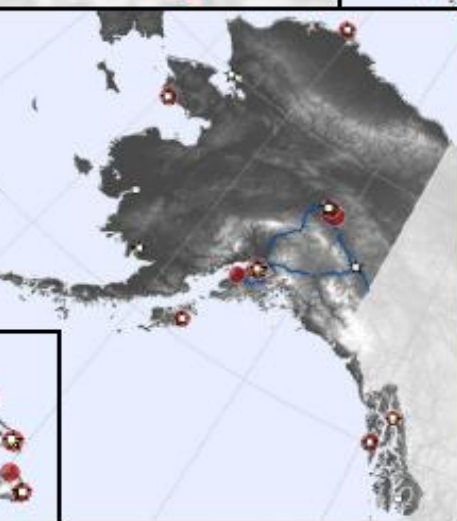
Helicopter EMS in the United States



Atlas & Database of Air Medical Services

Sixth Edition National Air Medical Services GIS Database

ADAMS 2008



<http://www.ADAMSairmed.org>

Center for Transportation Injury Research (CenTIR) at C
Association of Air Medical Services (A
-- Support provided by

Crowded Skies

- Texas – 90 Medical Helicopters
- Pennsylvania – 62 Medical Helicopters
- Florida – 61 Medical Helicopters
- Oklahoma
 - 2000: 3 Bases/4 Medical Helicopters
 - 2008: 25 Bases/34 Medical Helicopters

Apparent Trends

- **Steady Growth 1972 – 1998**
 - Hospital Based Not for Profit Model
 - EMS System Integration Slow/Relatively Smooth
 - State Regulation:
 - Not an Urgency in Many Locations
 - Not Challenged Where Attempted in Others
- **Rapid Growth 2000 – 2008 after new CMS Ambulance Fee Schedule**
 - For Profit Consolidator Model
 - Less integration with EMS Systems
 - State Regulation increasingly challenged under ADA preemption both in court and through US DOT/FAA opinions

Court Challenges

- **Challenges to State's Ability to Enforce:**
 - “Certificates of Need” Type Processes
 - Equipment Requirements
 - Destination Decisions
 - 24/7 Requirements
 - “Serve all” emergency patient requirements
 - Facility affiliation/oversight/integration requirements
- **“Prices, Routes, Services” Preemption**

US DOT - FAA Challenges

- Requirements for "quality, availability, accessibility and acceptability" preempted by ADA
- Regulating items such as oxygen masks, litters, blankets and trauma supplies is okay, BUT
- "...ostensibly dealing only with medical equipment/supplies aboard the aircraft could be so pervasive or so constructed as to be indirectly regulating the economic area of air ambulance prices, routes, or services" SO:
- Requirements for cardiac monitors, ventilators, & other "too expensive" items....preempted?

REGULATION



INTEGRATION

Faulty Premise

- **Helicopter EMS (HEMS) is a simple air carrier subject in full to ADA with DOT as sole regulator**
 - **ADA in 1978 did not anticipate HEMS**
 - **First and foremost, HEMS is an ambulance and medical crew**
 - **Provides sophisticated, physician directed medical care**
 - **Unlike air transport services, must integrate seamlessly with providers/services in another system (EMS system)**
 - **HEMS patients are not typical passengers**
 - **Cannot choose a service based on quality, service, price**
 - **Require public protection (as with all EMS users)**
 - **Air safety should not pre-empt patient safety**

Proposed Legislation

- “Helicopter Medical Services Patient Safety, Protection, and Coordination Act”
 - House HR.978
 - Senate S.848
- Also The Air Medical Safety Act, H.R. 1201
- House bill (first out) and Senate bill differ
- Efforts to amend FAA reauthorization
- S.848 now amended to a study by GAO

Snowe Amendment

- 9/22 amendment to Senate Health Care Reform Committee
- Would require CMS to ensure safety and quality when “purchasing” air medical services
 - Establish minimum quality standards – patient environment, design, training and qualifications of medical crew, QI peer review
 - Minimum service requirements - regardless of pay status, 24/7, response times, medcom equipment, patient destination, prohibition of inducements

Snowe Amendment

- Requirements on Air Ambulance Suppliers
 - Meet CMS requirements for program participation
 - Meet national accreditation requirements
 - Meet state licensure requirements

Snowe Amendment

- States
 - must recognize licensure of air ambulances and personnel based in another state
 - may set higher standards than CMS if based in state or responding regularly
 - May require integration and establish primary service areas
 - May incorporate into state health planning – distribution, utilization, volume

NASEMSO Positions

<http://www.nasemso.org/Projects/AirMedical>

Air Ambulance Advocacy: State Regulation of Coordination and Quality of Air Ambulance Service

[Summary Position Statement of NASEMSO on the Need for Shared State and Federal Regulation of Air Medical Services](#) (02/12/09)

[NASEMSO Position Statement in Support of HR 978, the Helicopter Medical Services Patient Safety, Protection, and Coordination Act](#) (02/15/09)

[Text of HR 978, the Helicopter Medical services Patient Safety, Protection, and Coordination Act](#) (02/15/09)

[Air ambulance advocacy key contacts](#) (09/08/08) This contact list includes key elected official and their office contacts, including fax, phone numbers and staff e-mails.

Air Medical Services: Future Development as an Integrated Component of the Emergency Air Medical Services System

Prehosp Emerg Care. 2007 Oct-Dec;11(4):353-68.

[Air Medical Services: future development as an integrated component of the Emergency Medical Services \(EMS\) System](#): a guidance document by the Air Medical Task Force of the National Association of State EMS Officials, National Association of EMS Physicians, Association of Air Medical Services